IN THE CLAIMS:

Claim 1 (previously presented): A plasma treatment arrangement for treating a workpiece, the arrangement comprising:

a vacuum process chamber for receiving workpieces and for containing a plasma discharge for treating the workpieces, the chamber having two electrodes that are spaced from each other in the chamber with the plasma discharge between the electrodes; and

a vacuum plasma generator with an output (26, 26') for feeding a plasma discharge for the treatment of workpieces in the vacuum chamber, the generator comprising:

a converter (7) having an output and a control input (7a) for at least one of setting and regulating an output DC voltage of the converter,

a mains connection (6a) for the junction to an AC voltage mains,

a mains rectifier (6) connected to the converter (7), and

a controlled full bridge circuit (13) connected to the converter output with a potential-free generator output (26, 26'), which transposes the converter output voltage into pulses of 1 to 500 kHz, and, into the bridge (13) a potential-isolating transformer (14) is switched for galvanic decoupling of the generator output (26, 26'),

the transformer (14) having at least one primary winding connected to the bridge and at least one secondary winding having two connections, the two connections of the secondary winding being respectively and directly connected to the two electrodes so that a bipolar voltage at the secondary winding of the transformer is transferred to the electrodes so that the electrodes operated with alternating polarity so that one electrode operates as a cathode while the other electrode operated as an anode in a periodically alternating fashion for inhibiting charges on surfaces of the electrodes caused by reversing

of polarity at the electrodes and the creating of short circuiting of the electrodes during repeated zero crossings of the bipolar voltage.

Claim 2 (previously presented): The plasma treatment arrangement as claimed in claim 1 wherein the voltage transformation ratio of the bridge circuit (13) with transformer (14) is maximally 1:2.

Claim 3 (previously presented): The plasma treatment arrangement as claimed in claim 1, wherein the transformer (14) has a leakage inductance (16,17) below 50 µH.

Claim 4 (previously presented): The plasma treatment arrangement as claimed in claim 1, wherein the converter (7) is a clocked converter for setting an output voltage, which is lower as well as also higher than the input voltage.

Claim 5 (previously presented): The plasma treatment arrangement as claimed in claim 1, wherein the bridge circuit (13) generates bipolar pulses.

Claim 6 (previously presented): The plasma treatment arrangement as claimed in claim 1, wherein the bridge circuit (13) comprises control means for one of setting and regulation of pulse behavior of the bridge circuit, the duty factor, the pulse width and for setting the pulse curve form for the bridge circuit.

Claim 7 (previously presented): The plasma treatment arrangement as claimed in claim 1, wherein the bridge circuit (13) forms a pulse interspace between successive

pulses.

Claim 8 (previously presented): The plasma treatment arrangement claimed in claim 7, wherein the bridge circuit (13) short circuits the transformer (14) at the primary winding during the pulse interspaces.

Claim 9 (previously presented): The plasma treatment arrangement as claimed in claim 1, wherein at least two bridge circuits (13) are connected succeeding the converter (7).

Claim 10 (previously presented): The plasma treatment arrangement as claimed in claim 9, wherein four bridge circuits are connected succeeding the converter (7).

Claim 11 (previously presented): The plasma treatment arrangement as claimed in claim 9, wherein to each bridge circuit (13) a transformer (14) is assigned and the secondary windings of the transformers (14) are connected in parallel.

Claim 12 (previously presented): The plasma treatment arrangement as claimed in claim 9, wherein the bridge circuits (13) are switched offset in phase.

Claim 13 (previously presented): Method for the production of a layer by reactive deposition out of a plasma, wherein the plasma is operated with the arrangement as claimed in claim 1.

Claim 14 (previously presented): Method as claimed in claim 13, wherein the generator output (26,26') is connected with two deposition electrodes (3) comprising the two spaced apart electrodes in the vacuum process chamber.

Claim 15 (previously presented): Method as claimed in claim 13, wherein dielectric layers are deposited reactively.

Claim 16 (previously presented): Method as claimed in claim 13, wherein the layer is deposited by sputtering.

Claim 17 (previously presented): Method as claimed in claim 13, wherein the layer is a reactively deposited metal oxide layer Me_xO_y.

Claim 18 (previously presented): Method as claimed in claim 17, wherein the hard material layer is an Al_2O_3 layer.

Claim 19 (previously presented): Method as claimed in claim 17, wherein the hard material layer is a mixed oxide.

Claim 20 (previously presented): Method as claimed in claim 13, wherein the crystalline structure of the layer comprises substantially at least one of an alpha phase and a gamma phase.